

REMARKS

Applicant requests reconsideration of the present application in view of the foregoing amendments and the discussion that follows. The status of the claims as of this response is as follows: Claims 33-35 are now pending in the above-mentioned patent application and stand rejected. Claims 33-35 have been amended herein.

The Amendment

Claim 33 was amended in the preamble to delete "conducting chemical reactions" and to indicate that each of the chips fabricated has an array of chemical compounds. Support therefor is in the Specification, for example, page 28, lines 23-34. Claim 33 was also amended to recite the step of applying reagents for synthesizing chemical compounds on the substrate and utilizing the electronically addressable sites to conduct the synthesizing. Support therefor is in the Specification, for example, page 28, lines 23-34. Claim 33 was also amended to indicate that the individual chips comprise an array of chemical compounds.

Claim 34 was amended in a manner similar to that for Claim 33 where the chips comprise an array of oligonucleotides. Support therefor is in the Specification, page 28, lines 16-19.

Claim 35 was amended in the preamble to indicate that the chips comprise oligonucleotide arrays. Support therefor is in the Specification, for example, page 27, lines 1-2. Claim 35 was also amended to recite that the substrate is exposed to nucleotide monomers and the sites are electronically addressed to form the oligonucleotide arrays. Support therefor is in the Specification, for example, page 26, lines 17-33.

Rejection under 35 U.S.C. §103

Claims 33-35 were rejected under paragraph (a) of the above code section as being unpatentable over Montgomery, U.S. Patent No. 6,093,302 (Montgomery) in view of Bassous, *et al.*, U.S. Patent No. 4,047,184 (Bassous) and the statements in Applicant's specification at page 22, lines 21-29.

In order to maintain a rejection under 35 U.S.C. §103 the Examiner must first establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); *In re Piasecki*, 745 F.2d 1468, 223 U.S.P.Q. 785 (Fed. Cir. 1984). In determining the propriety of the Patent Office case for

obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed substitution, combination or other modification. *In re Lintner*, 458 F.2d 1013, 173 U.S.P.Q. 560 (C.C.P.A. 1972). In determining the scope and content of the prior art, references must be considered in their entirety, as a whole, including portions that would lead away from the claimed invention. *In re Panduit*, 810 F.2d 1561, 1 U.S.P.Q.2d 1593 (Fed Cir. 1987). Hindsight reconstruction using the disclosure and claims in prosecution as a guide to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention is not permitted. *In re Fine, supra*.

Montgomery discloses a solid phase synthesis method for the preparation of diverse sequences of separate polymers or nucleic acid sequences using electrochemical placement of monomers or nucleic acids at a specific location on a substrate containing at least one electrode that is preferably in contact with a buffering or scavenging solution to prevent chemical crosstalk between electrodes due to diffusion of electrochemically generated reagents.

Bassous teaches a charge electrode array and combination for ink jet printing and method of manufacture. At column 6, lines 34-37, Bassous states that more than one charge electrode array may be formed on a single substrate, which may be scribed and diced to yield each charge electrode array chip.

The Examiner recognizes that Montgomery is deficient because the reference does not teach or suggest fabrication of more than one chip on a substrate and severing the substrate to yield multiple chips. However, asserts the Examiner, such a technique is very well-established in the art. In support of this assertion, the Examiner points to the passage from Bassous discussed above as well as to Applicant's own specification at page 22, lines 21-29.

Applicant first would like to address the Examiner's contention regarding Applicant's own disclosure. The cited passage must be read in the context of the paragraph in which it appears. When viewed in context, it is clear that the statement is referring to the preparation of the various layers of the device including their interconnection. The passage refers specifically to certain reference books relating to VLSI technology and basic VLSI design. There is no statement relevant to the invention of Claims 33-35 and no admission that the inventions of Claims 33-35 are known or suggested to the skilled artisan.


In the presently claimed invention, arrays of chemical compounds are synthesized on the surface of a single substrate by applying reagents to the substrate and activating the addressable sites to carry out the synthesis. Following the fabrication of the arrays on the surface of the substrate, the substrate is severed into individual chips having arrays of chemical compounds.

The disclosure of Bassous relates to dicing electrode arrays into chips. Combining the teaching of Bassous with that of Montgomery does not yield the presently claimed method. There is nothing in the teaching of Montgomery or Bassous, or in the combined teachings, that would suggest dicing a substrate into individual chips after the synthesis of arrays of chemical compounds has been carried out on the surface of the substrate. Even if, for the sake of argument, the skilled artisan might be motivated to combine the teachings of the references, the combined teachings of Montgomery and Bassous would yield a method wherein the substrate is diced into individual chips prior to the synthesis of compounds on its surface since Montgomery performs chemistry on individual chips having electrodes and Bassous teaches dicing substrates with electrode arrays. To first carry out the synthesis of arrays of chemical compounds on a large substrate and sever that substrate into individual chips comprising arrays of chemical compounds requires the teaching of Applicant's own disclosure, which is impermissible. Furthermore, for the above reasons, the instant invention does not represent routine optimization as asserted by the Examiner.

Conclusion

Claims 33-35 satisfy the requirements of 35 U.S.C. 103. Allowance of the above-identified patent application, it is submitted, is in order.

Respectfully submitted,


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